

AMENDMENTS TO THE CLAIMS

Claim 1 (currently amended) Diagnosis A diagnosis system for household electric appliances such as refrigerators, freezers, and others, of the type presenting multiple loads which are energized by switches commanded by respective electronic controls operatively coupled to a command module, which energizes the loads and an interface coupled thereto, comprising characterized in that it comprises:

a voltmeter operatively coupled to an the inlet of each load, so as to measure a first voltage in the inlets inlet of all of the loads with the switches opened, and one or more second voltage in corresponding inlets of loads each having a the inlet of each load with the respective switch for the load closed; and

a control unit operatively associated with the command module and with the voltmeter and which is operated according to a sequence of tests that are selectively activated to receive from the voltmeter the values of the first voltage and of each second voltage and to process these values, indicating in an the interface the existence of failure in at least one of a plurality of the elements defined by the command module, by the switches $[[,]]$ and by the respective electronic controls thereof, the existence of a failure being indicated in case any second voltage presents a value that is equal to or higher than that of the first voltage.

Claim 2 (currently amended) The diagnosis system as set forth in claim 1, wherein the control unit is operated so as to further process, sequentially, the values of a pair each pair of second voltages of two loads with the respective switches of the two loads simultaneously closed, indicating in the interface the existence of failure in at least one of the plurality of elements defined by the command module, the switches and the respective electronic controls thereof, in case any second voltage for one or more of the two loads presents a value that is equal to or higher than a limit voltage which is lower than the first voltage, or in case the pair of second voltages for each of the two loads presents a value that is equal to or higher than a processing voltage which is lower than the second voltage of one of the two loads having activating means in the command module that are not being tested, by the switches, and by their respective electronic controls and

interrupting the sequence of tests, in case any second voltage of each load presents a value that is equal to or higher than a limit voltage which is lower than the first voltage and in case each pair of second voltages of two loads with the switches simultaneously closed presents a value that is equal to or higher than a processing voltage which is lower than the second voltage of one of said two loads whose activating means in the command module are not being tested.

Claim 3 (currently amended) The diagnosis system as set forth in claim 2, wherein the limit voltage has a value corresponding to about 87. 5% of the value of the first voltage.

Claim 4 (currently amended) The diagnosis system as set forth in claim 2, wherein the processing voltage has a value corresponding to about 87.5% of the value of the second voltage load of the one said load selected from the two loads with the switches simultaneously closed and having whose activating means in the command module that are not being tested.

Claim 5 (currently amended) The diagnosis system as set forth in claim 1, wherein the control unit returns the command module to the normal operation for the household electric in the refrigeration appliance, after it has indicated in the interface the existence of the failure in the operation of the at least one element any of the elements defined by the command module, the switches, and the electronic controls.

Claim 6 (currently amended) The diagnosis system as set forth in claim 1, wherein the control unit indicates in the interface the absence of failure in the loads , when the second voltages measured by the voltmeter are lower than the first voltage and the latter is higher than a reference voltage corresponding to a voltage value above which the first voltage is compulsorily situated in values for the first voltage directly indicate a the correct operational condition of the loads.

Claim 7 (currently amended) The diagnosis system as set forth in claim 6, wherein the control unit compares the first voltage with the reference voltage only after it has compared the second voltages with each other and verified that the compared second voltages they are equal or substantially equal.

Claim 8 (currently amended) The diagnosis system as set forth in claim 6, wherein the control unit indicates in the interface the existence of failure in one any of the loads , when a the respective second voltage of the one load is lower higher than a minimum voltage, which is lower than the lowest second voltage in the inlet of each of the plurality of loads when load with the a respective switch for the load having the lowest second voltage is closed and indicates a correct operational condition of the load.

Claim 9 (currently amended) The diagnosis system as set forth in claim 8, wherein the minimum voltage has a value corresponding to about 75% of the value of the lowest second voltage.

Claim 10 (currently amended) The diagnosis system as set forth in claim 8, wherein the control unit compares each second voltage with the minimum voltage only after comparing said second voltages with each other and verified that the compared second voltages they are not equal.

Claim 11 (currently amended) The diagnosis system as set forth in claim 1, wherein the voltmeter comprises a signal conditioning circuit connected to the inlet of each load upstream from the respective switch for the load and supplying voltage signals from said inlet of each load to the control unit .

Claim 12 (currently amended) The diagnosis system as set forth in claim 11, wherein the voltage signals from of the inlet of each load the loads are sent to an AD converter connected to the control unit.

Claim 13 (previously presented) The diagnosis system as set forth in claim 1, wherein the control unit interrupts the sequence of tests in case any second voltage presents a value that is equal to or higher than that of the first voltage.

Claim 14 (currently amended) The diagnosis system as set forth in claim 2, wherein the control unit returns the command module to the normal operation in the household electric refrigeration appliance, after it has indicated in the interface the existence of failure in the operation of the at least one element any of the elements defined by the command module, the switches, and the electronic controls.

Claim 15 (currently amended) The diagnosis system as set forth in claim 2, wherein the control unit indicates in the interface the absence of failure in the loads, when the second voltages measured by the voltmeter are lower than the first voltage and the latter is higher than a reference voltage corresponding to a voltage value above which ~~the first voltage is compulsorily situated in values for the first voltage directly indicate a the~~ correct operational condition of the loads.

Claim 16 (currently amended) The diagnosis system as set forth in claim 15, wherein the control unit compares the first voltage with the reference voltage only after it has compared the second voltages with each other and verified that the compared second voltages they are equal or substantially equal.

Claim 17 (currently amended) The diagnosis system as set forth in claim 15, wherein the control unit indicates in the interface the existence of failure in one any of the loads , when a the respective second voltage of the one load is lower higher than a minimum voltage, which is lower than the lowest second voltage in the inlet of each of the plurality of loads when lead with the a respective switch for the load having the lowest second voltage is closed and indicates a correct operational condition of the load.

Claim 18 (currently amended) The diagnosis system as set forth in claim 17 15, wherein the minimum voltage has a value corresponding to about 75% the value of the lowest second voltage.

Claim 19 (currently amended) The diagnosis system as set forth in claim 17 15, wherein the control unit compares each second voltage with the minimum voltage only after comparing said second voltages with each other and verified verifying that the compared second voltages they are not equal.